UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 May 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>2-6,8-13,15,16 and 18-24</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>2-6,8-13,15,16 and 18-24</u> is/are rejected.

7) ☒ Claim(s) <u>4 and 5</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All   b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to applicant's amendment filed on May 8, 2009.

2.   Claims 2-6, 8-13, 15-16, and 18-24 are pending in this application. Claims 2-6, 8-13, and 15-16 are amended by applicant's amendment. Claims 1, 7, 14, and 17 have been cancelled. Claims 21-24 have been added.

3.   Applicant's arguments in respect to the new issues of Claims 2-6, 8-13, 15-16, and 18-24 have been considered but they are not persuasive.

Response to Arguments

4.   Applicant's amendments are accepted as overcoming the claim objections of the previous office action. However, the claim amendments present new objections as stated below.

5.   Applicant's arguments filed May 8, 2009 have been considered but they are not fully persuasive. In the remarks applicant argues:

     I)   Suzaki in view of Tewfik does not disclose representing watermark information using PN codes.

In response to applicant's arguments:

     I)   Tewfik, col. 2 lines 50-60, teaches embedding a signature, which is watermark information, into a document. The digital signature can be comprised of PN codes. Therefore, the watermark information is represented by the PN codes.

Examiner Notes

6.   Examiner cites particular columns and line numbers in the references as applied

to the claims below for the convenience of the applicant. Although the specified citations

are representative of the teachings in the art and are applied to the specific limitations

within the individual claim, other passages and figures may apply as well. It is

respectfully requested that, in preparing responses, the applicant fully consider the

references in entirety as potentially teaching all or part of the claimed invention, as well

as the context of the passage as taught by the prior art or disclosed by the examiner.

Claim Objections

7.   Claims 4-5 are objected to because of the following informalities: The wording of

the claims does not conform to proper English standards. Appropriate correction is

required.

8.   Claim 5 also cites "two dimensional PC codes" that should be "two dimensional

PN codes".

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

10.   **Claims 2-6, 8-13, 15-16 and 18-24** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Suzaki (US Pre-Grant Publication 2003/0021442 A1, published 1-30-

2003) in view of Tewfik et al. (US Patent 6031914, published 2-29-2000) hereinafter

referred to as Tewfik.

As per claim 2, Suzaki discloses a watermark information embedding apparatus,

comprising: a document image generating section for generating a document image

(Figure 1 and paragraphs 42-43, Suzaki teaches a document image formation

portion to generate a document image.); generating representational watermark

information and generating a watermark image in which the representational watermark

information is denoted by dot patterns **(paragraphs 44, 56-61, Figure 3, and abstract,**

Suzaki teaches using dot patterns.); and a synthesizing section for overlapping the

document image and the watermark image so as to generate a watermarked document

image **(paragraph 45, Suzaki teaches obtaining a watermark document image by**

combining the watermark document and the document.) Suzaki also discloses the

use of codes to form the watermark **(paragraph 56, Suzaki teaches the use of**

codes.)

However, Suzaki does not specifically teach the use of PN codes.

Tewfik discloses a PN code generating section for generating at least one PN

code **(col. 3 lines 50-54, Tewfik teaches a PN code being generated by the**

invention.); a watermark image generating section for representing units of watermark

information using the PN code **(col. 3 lines 50-60, Tewfik teaches embedding the**

input data (PN Code) into the host data. Therefore, the PN code is inserted into a

document to watermark that document.)

Suzaki and Tewfik are analogous art because they are from the same field of

endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Suzaki's teachings with the teachings of Tewfik because this would

this would increase the security and data integrity of the generated watermark **(col. 2**

lines 38-42, Tewfik teaches the need to hide the watermark to survive data

manipulations and PN codes will allow for this.)

As per claim 3, Suzaki in view of Tewfik disclose the watermark information

embedding apparatus according to claim 2, wherein the watermark image generating

section utilizes the at least one PN code to represent the watermark information with

respect to row unit or column unit **(Tewfik, col. 3 lines 50-60, teaches using the PN**

code to generate the watermark. Suzaki, Figure 3 and paragraphs 60-61, teaches

the PN codes being used to represent the height and width (column and row) of

the watermark signal.)

As per claim 4, Suzaki in view of Tewfik disclose the watermark information

embedding apparatus according to claim 2, wherein the PN code generating section

generates at least one two-dimensional PN code which is different from or the same a

row direction and a column direction **(Suzaki, paragraph 56, teaches the generation**

of N-dimensional codes where N >=2 and Suzaki, paragraphs 60-61, teaches that

the two-dimensional codes represent the height and width (column and row) of

the watermark image. Tewfik, col. 3 lines 50-60, teaches the use of PN codes to

generate watermark images.)

As per claim 5, Suzaki discloses a watermark information embedding apparatus

comprising: a document image generating section for generating a document image

(Figure 1 and paragraphs 42-43, Suzaki teaches a document image formation

portion to generate a document image.); a code generating section for generating

two dimensional PN codes that together form a three-dimensional PN code which is

different from or the same in a row direction and a column direction **(paragraphs 56-60,**

Suzaki teaches generating N-dimensional codes that represent the height and

width (column and row) of the watermark signal.); a watermark image generating

section for using the two-dimensional codes to represent units of watermark information

(paragraphs 56-60, Suzaki teaches the use of N-dimensional codes to generate a

watermark image.), and a synthesizing section for overlapping the document image

and corresponding watermark image so as to generate a watermarked document image

(paragraph 45, Suzaki teaches obtaining a watermark document image by

combining the watermark document and the document.)

However, Suzaki does not specifically state the use of a multipage document or watermarking a multipage document.

It would have been obvious to one of ordinary skill in the art at the time of the invention to insert a watermark into a multipage document. Suzaki, paragraph 56, teaches the use of N-dimensional (N >= 2) codes being used to insert a watermark into a single page document. If the two-dimensional codes represent the height and width of the watermark signal (page) as shown in Suzaki paragraph 60, then it would be obvious for the third dimension to be the page number and to insert a watermark into that multipage document.

However, Suzaki also does not specifically state the codes to be used are PN codes.

Tewfik discloses the use of PN codes **(col. 3 lines 50-60, Tewfik teaches generating the PN codes and embedding the input data (PN Code) into the host data. Therefore, the PN code is inserted into a document to watermark that document.)**

Suzaki and Tewfik are analogous art because they are from the same field of endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Suzaki's teachings with the teachings of Tewfik because this would this would increase the security and data integrity of the generated watermark **(col. 2 lines 38-42, Tewfik teaches the need to hide the watermark to survive data manipulations and PN codes will allow for this.)**

As per claim 6, Suzaki in view of Tewfik discloses the watermark information embedding apparatus according to claim 2, wherein there is at least one dot pattern representing special watermark information **(paragraphs 44, 56-61, Figure 3, and abstract, Suzaki teaches using dot patterns to contain special information.)**

As per claim 8, Suzaki discloses a watermark information detecting apparatus for extracting units of watermark information **(paragraphs 47-50, Suzaki teaches a watermark information detection device.)**, from a document, comprising: a watermark information detector **(paragraph 18-19, Suzaki teaches detection of the watermark by use of the dot patterns.)**, the watermark information detector extracting the watermark image from the document **(paragraph 18-19, Suzaki teaches detection and extraction of the watermark image.)**, Suzaki also discloses determining the area of the watermark signal **(paragraphs 97-99, Suzaki teaches calculating the watermark area.)**

However, Suzaki also does not specifically state the use of PN codes.

Tewfik discloses the use of PN codes to generate and embed the watermark **(col. 3 lines 50-60, Tewfik teaches generating the PN codes and embedding the input data (PN Code) into the host data. Therefore, the PN code is inserted into a document to watermark that document.)**

Suzaki and Tewfik are analogous art because they are from the same field of endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Suzaki's teachings with the teachings of Tewfik because this would this would increase the security and data integrity of the generated watermark **(col. 2 lines 38-42, Tewfik teaches the need to hide the watermark to survive data manipulations and PN codes will allow for this.)**

As per claim 9, Suzaki in view of Tewfik discloses the watermark information detecting apparatus according to claim 8, wherein the watermark information detector discriminates whether the watermark information is correctly detected according to at least one correlation peak value of the at least one PN code **(paragraph 102, Suzaki teaches determining if the watermark contains any noise information. Tewfik, col. 3 lines 50-60, teaches the use of PN codes.)**

As per claim 10, Suzaki in view of Tewfik discloses the watermark information detecting apparatus according to claim 8, wherein the watermark information detector calculates correlation values using different PN codes, detects a correlation peak value of each PN code, and estimates row addresses and column addresses according to the correlation peak values **(Suzaki, paragraphs 19, 103-104, teaches the use of a filter to detect the watermark information on the watermarked document. Figures 17 and 18 also teach the recovering of the codes (row and column) that were used to embed the watermark. Tewfik, col. 3 lines 50-60, teaches the use of PN codes to**

be able to embed data in a watermark that can also be retrieved even if the data

has been manipulated.)

As per claim 11, Suzaki in view of Tewfik discloses the watermark information

detecting apparatus according to claim 8, wherein the watermark information detector

calculates correlation of two-dimensional PN code, which include different PN codes in

a row direction and a column direction **(paragraphs 19 and 56-60 and 103, Suzaki**

discloses the use of two-dimensional filters to determine the codes. Suzaki also

teaches that these codes can be any dimension greater than or equal to 2, and

that the two-dimensional version represents the height and width (column and

row) of the watermark.), so as to estimate the area occupied by the watermark

information **(paragraphs 97-99, Suzaki teaches calculating the watermark area.)**

As per claim 12, Suzaki in view of Tewfik discloses the watermark information

detecting apparatus according to claim 8, and wherein the watermark information

detector calculates correlation of three-dimensional PN codes, which include different

PN codes in a row direction and a column direction **(paragraphs 19 and 56-60 and**

103, Suzaki discloses the use of two-dimensional filters to determine the codes.

Suzaki also teaches that these codes can be any dimension greater than or equal

to 2, and that the two-dimensional version represents the height and width

(column and row) of the watermark.), so as to estimate the area occupied by the

watermark information **(paragraphs 97-99, Suzaki teaches calculating the watermark area.)**

However, Suzaki in view of Tewfik does not specifically state the use of a multipage document or watermarking a multipage document.

It would have been obvious to one of ordinary skill in the art at the time of the invention to insert a watermark into a multipage document. Suzaki, paragraph 56, teaches the use of N-dimensional (N >= 2) codes being used to insert a watermark into a single page document. If the two-dimensional codes represent the height and width of the watermark signal (page) as shown in Suzaki paragraph 60, then it would be obvious for the third dimension to be the page number and to insert a watermark into that multipage document.

As per claim 13, Suzaki in view of Tewfik disclose the watermark information detecting apparatus according to claim 8, wherein there is at least one dot pattern representing special watermark information **(paragraphs 44, 56-61, Figure 3, and abstract, Suzaki teaches using dot patterns to contain special information.)**

As per claim 15, Suzaki discloses a method of embedding watermark information, comprising: generating a watermark image using a watermark information embedding apparatus to represent units of watermark information by using at least one code **(paragraphs 56-60, Suzaki teaches using codes to generate a watermark.)**; combining the watermark image and a document image so as to generate a combined

image **(paragraphs 45-46, Suzaki teaches generating the document and printing the document.)**; and outputting the combined image **(paragraphs 45-46, Suzaki teaches generating the document and printing the document.)**

However, Suzaki also does not specifically state that the codes are PN codes.

Tewfik discloses the use of PN codes to generate and embed the watermark **(col. 3 lines 50-60, Tewfik teaches generating the PN codes and embedding the input data (PN Code) into the host data. Therefore, the PN code is inserted into a document to watermark that document.)**

Suzaki and Tewfik are analogous art because they are from the same field of endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Suzaki's teachings with the teachings of Tewfik because this would this would increase the security and data integrity of the generated watermark **(col. 2 lines 38-42, Tewfik teaches the need to hide the watermark to survive data manipulations and PN codes will allow for this.)**

As per claim 16, Suzaki in view of Tewfik disclose the method of embedding watermark information according to claim 15, wherein there is at least one dot pattern representing special watermark information **(paragraphs 44, 56-61, Figure 3, and abstract, Suzaki teaches using dot patterns to contain special information.)**

As per claim 18, Suzaki discloses a method for detecting watermark information using a watermark information detecting apparatus to extract units of watermark information **(paragraph 18-19, Suzaki teaches the use of a detecting apparatus to detect and extract watermark information.)**, and estimating the area of the watermark information according to previous steps **(paragraphs 97-99, Suzaki teaches calculating the watermark area.)** Suzaki also teaches the use of codes in the watermark **(paragraphs 56-60, Suzaki teaches the use of the codes.)** and also performing a correlation to detect and extract the watermark **(paragraphs 18-19, Suzaki teaches extracting the data by a correlation.)**

However, Suzaki also does not specifically state that these codes are PN codes.

Tewfik discloses the use of PN codes to generate and embed the watermark **(col. 3 lines 50-60, Tewfik teaches generating the PN codes and embedding the input data (PN Code) into the host data. Therefore, the PN code is inserted into a document to watermark that document.)**

Suzaki and Tewfik are analogous art because they are from the same field of endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Suzaki's teachings with the teachings of Tewfik because this would this would increase the security and data integrity of the generated watermark **(col. 2 lines 38-42, Tewfik teaches the need to hide the watermark to survive data manipulations and PN codes will allow for this.)**

As per claim 19, Suzaki in view of Tewfik disclose the method of detecting watermark information according to claim 18, wherein there is at least a dot pattern representing special watermark information **(paragraphs 44, 56-61, Figure 3, and abstract, Suzaki teaches using dot patterns to contain special information.)**

As per claim 20, Suzaki discloses a method for generating a watermarked document comprising: generating a watermark image by using at least one code to represent units of watermark information **(paragraphs 56-60, Suzaki teaches using codes to generate the watermark information.)**; and combining the watermark image and a document **(paragraph 45, Suzaki teaches obtaining a watermark document image by combining the watermark document and the document.)**

However, Suzaki also does not specifically state that these codes are PN codes.

Tewfik discloses the use of PN codes to generate and embed the watermark **(col. 3 lines 50-60, Tewfik teaches generating the PN codes and embedding the input data (PN Code) into the host data. Therefore, the PN code is inserted into a document to watermark that document.)**

Suzaki and Tewfik are analogous art because they are from the same field of endeavor of inserting watermarks into data in order to verify the integrity of the data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Suzaki's teachings with the teachings of Tewfik because this would this would increase the security and data integrity of the generated watermark **(col. 2**

lines 38-42, Tewfik teaches the need to hide the watermark to survive data manipulations and PN codes will allow for this.)

As per claims 21 and 23, Suzaki in view of Tewfik discloses the units of watermark information are bits of watermark information **(Tewfik, col. 2 lines 50-60, teaches embedding a digital signature into a document to watermark the document. It is well known in the art that all digital data must be stored as bits of information. Tewfik, col. 2 lines 25-38, also specifically teaches modifying bits of data as a data hiding technique.)**

As per claims 22 and 24, Suzaki in view of Tewfik discloses the at least one PN code includes a particular PN code and another PN code having bits that are inverted from the bits of the particular PN code **(Tewfik, col. 3 lines 43-60, teaches using multiple PN codes. Tewfik also teaches using DCT's and inverse DCT's to embed and detect watermarks. Barring any unexpected results from specifically using the inverse PN code it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the inverse PN code to replace a second PN code.)**

Conclusion

11.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John B. King whose telephone number is (571)270-

7310. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Vu can be reached on (571)272-3859. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John B King/
Examiner, Art Unit 2435
/Kimyen Vu/
Supervisory Patent Examiner, Art Unit 2435